Garrulus caspius and the third to *G. krynicki*. The last should be queried (?), as the lowlands of the Talysch are the home of *G. caspius*.]

[Among the less important misprints are the following: on p. 403, l. 5 from below, for 'Lemback' read 'Lembach'; p. 424, l. 12 from above, for 'Waschbunk' read 'Waschbank'; p. 428, l. 29 from below, for 'Cerwa' read 'Cerva'; p. 473, l. 2 from below, for 'Anderach' read 'Andernach'; p. 490, l. 11 from above, for 'Eleubf' read 'Elbeuf.']

XXX.—*Notes and Observations on the Painted Snipe* (Rostratula capensis) *in Ceylon.* By J. O. Beven, B.A. (Christ's College, Cambridge).

The genus *Rostratula*, consisting of only three species, has a wide distribution in the world, and has attracted some attention, owing to the fact that its members afford an example of a typical sexual dimorphism, the females of all three species being more conspicuous than their mates, both as regards size and plumage.

Common though this "superiority" of the female is among the Insects and some other Invertebrate groups, it is extremely rare among Birds, and Darwin, in the 'Descent of Man,' quotes the Painted Snipe as an example of it.

The females of the genus *Turnix*, of two species of Phalarope (*P. hyperboreus* and *P. fulicarius*), of the Cassowary (*Casuarius*), and of one or two other birds, excel their mates as regards size, but in none of them is the difference between the sexes so marked as it is in *Rostratula*, where, in addition, the females are very much more brightly coloured and also possess a more complicated arrangement of the trachea than do the males.

There are three known species of *Rostratula*: *R. australis*, inhabiting the Australian region; *R. semicollaris*, found in Patagonia, Chili, and other parts of South America; and *R. capensis*, the only one which I have had the opportunity

of observing, and some of the habits and peculiarities of which I have studied.

Like its allies of Australia and South America *Rostratula capensis* is known as the Painted Snipe or, more popularly, the "Painter." It has a wide distribution, being recorded from Africa through southern Asia to Japan, China, the Malay Archipelago and Peninsula, from India, and, lastly, from Ceylon, where alone I have made observations on the bird.

In Ceylon it is the only Snipe which is a resident throughout the year, though it is credited by some with being a migrant as well. Certain it is that the bird is more commonly met with at certain seasons than at others, being most numerous from September to April, when it is found in the paddy-fields and marshy districts of the low country generally. But the reason for this apparent increase in numbers is not far to seek. The "months with an R"—September to April—constitute the "Snipe Season," when thousands of the Pin-tailed Snipe, *Gallinago stenura*, are found in the paddy-fields and about the great irrigation-tanks of the low country, and sportsmen brave mosquitos, malaria, and all other ills to shoot them.

During the rest of the year *Gallinago stenura* deserts Ceylon, and sportsmen, leaving the paddy-fields with their attendant discomforts alone, turn their attention to other game. Consequently, the "Painter," which does not change its habitat, is but seldom seen, and so the idea has become prevalent that it is a migrant, like its Pin-tailed ally.

Rostratula is very local in its distribution, and does not occur at elevations above a thousand feet. It is most frequently met with in the Southern and Western Provinces of the island and in the salt-marshes round Trincomalee in the east, though it has been recorded at various times from all parts of the low country. I have shot over large tracts of Snipe-ground in the North Western Province and have never seen a Painted Snipe, and in the extreme north, in the course of four months' almost daily shooting among the dense mangrove-swamps which fringe the brackish tanks

found there, I came across only half a dozen specimens. In the Western Province, about 25 miles north of Colombo, I have found the bird more numerous, both relatively and absolutely, than anywhere else.

Hume and Marshall state that one *Rostratula* to every fifty Pin-tailed Snipe gives a fair idea of the frequency with which the "Painter" figures in the sportsman's bag; but in the above district I shot, in 1908, 15 Painted Snipe and 200 Pin-tailed, and in 1909, 25 as against 130.

But even here, where they were so numerous, they occurred "discontinuously." There were certain fields in which I rarely failed to see one of these birds, while in others, not a quarter of a mile away and to all appearances just as suitable as regards food, moisture, and cover, I have never met with one.

I can offer no explanation of this uneven and sporadic distribution, and probably, as an authority on the subject of Geographical Distribution has said, the reason, if we could see it, would not appear to us as such.

As regards the systematic position of *Rostratula*, it is usually placed with the Snipes (Scolopacidæ) among the Limicolæ. Beddard, however, suggests that it is more nearly allied to the Jacanas (Parridæ) than to the Snipes. Although in some respects differing from the Scolopacidæ, *e. g.* in the nature of the trachea and the bill, *Rostratula* seems to have little claim to affinity with the Parridæ. Thus the skull is Snipe-like, and the bill, which differs from that of Snipes in having the upper mandible slightly longer than the lower, and overhanging it at the tip, is, in all other respects, Snipe-like and far longer than that of any Jacana; while, on the other hand, the toes are not conspicuously long, as they invariably are in those birds.

In habits *Rostratula capensis* may be described as intermediate between the Rails and Snipes; it certainly exhibits none of that love for open expanses of water which has earned for some species of Jacana the soubriquet of "Water Pheasant."

Though always found in "Snipe-ground," *Rostratula*

prefers rather denser cover than do Pin-tailed Snipe, being especially fond of clumps of sedge and tall marsh-grass. During the hottest hours of the day it seeks shelter in the shady boundaries that skirt all paddy-fields. It is a very silent bird—in this, too, presenting a contrast to the noisy Jacanas,—and only once have I heard an adult utter any sound; on that occasion a wounded bird was seized by a dog, which caused it to give vent to a grating cry which might have come from almost any bird in the same circumstances.

The young birds, which I have kept in captivity on more than one occasion, keep up a rather plaintive "cheeping," though eating greedily and to all appearances well. At night, if disturbed (for instance, by a light), they ruffle their feathers, droop their wings, and make a loud hissing sound. The bill is, at the same time, lowered till the tip rests on the ground. This attitude is very suggestive of that assumed by some birds in displaying themselves before their mates.

The females of *R. australis* and *R. capensis* have coiled tracheæ; the tube in the former case is said to form four complete loops, but in the case of *R. capensis* there is only a half loop. In all cases the males have a straight trachea. It strikes one as rather strange that silent birds should be provided with complicated organs of voice, and in the present instance, at any rate, it may be that the bird is not as silent in its habits as is supposed.

The Painted Snipe is said to be a nocturnal feeder, though the young birds I kept always fed by day, and it is quite possible that it may also reserve its vocal efforts for the hours of darkness. If this be the case, it is not surprising that the cry has never been described, for, in the chaos of sounds that make up the "loud silence" of a tropical night, it is not easy to single out one and trace it to its source.

According to Legge the adult birds live principally on small mollusca. I have also seen them eat worms, and the young birds show no hesitation in swallowing earthworms,

which, to an onlooker, seem several sizes too large for them.

I regret that I have never dissected out the nerve-terminations in the bill of *Rostratula*, for it would be interesting to know whether there is a dense plexus of non-medullated fibres derived from the fifth nerve similar to that found in the bills of the true Scolopacidæ.

The Painted Snipe is not an easy bird to flush; it lies very close, and when almost trodden on, rises silently, not uttering even the monosyllabic "Tchk," so characteristic of the Snipe. The flight is gliding and rather Owl-like, very different to the swift erratic twisting of the other Snipes; it is generally short, and the bird drops into cover rather suddenly.

On one occasion I saw a wounded *Rostratula* swim, and the young birds take to the water readily if attempting to escape pursuit.

There has been a good deal of speculation and surmise regarding the nesting-habits of *Rostratula* and the part played by the two sexes in the discharge of the parental duties. Legge states that the breeding-season lasts from November to May, or else that the birds nest indiscriminately at all times of the year. I obtained either the eggs or young as follows:—

September 31, 1907.....	4 eggs.
October 4, 1907	2 young birds.
February 11, 1906	3 eggs.
February 18, 1908	3 young birds.
March 11, 1910	3 young birds.
March 14, 1910	3 nearly adult young.

These dates, though hardly numerous enough to justify a decided opinion, seem to indicate that October to February are the favourite breeding-months.

The nest is at best a very rough structure, consisting of stubble bent and trodden down to form a slight concavity; it is placed in the open paddy-fields, and has no "roof" like that of some water-birds.

The eggs are rather large for the size of the bird, markedly pointed at one end, and of a reddish-buff colour, with large spots and splashes of black.

Darwin mentions it as a possibility that the cock bird may bear the onus of incubation, as well as performing the duties of "childward care." Legge, Jerdon, and others cite the same possibility, quoting the general femininity of the cock bird as an argument in its favour.

My own observations are that the male does incubate the eggs; but whether this is the invariable rule, and whether the hen takes any share in the task, I cannot definitely say, though the evidence seems against the latter probability.

On the second occasion on which I obtained the eggs of this species, I was walking through a particular field for the third time in a quarter of an hour, when a Painted Snipe, a cock bird, rose a couple of feet in front of me. No sooner had I shot the bird than it struck me that it might have risen off a nest, and, on looking in the place which the bird had just left, I found a nest with four eggs which were quite warm. On this occasion the hen bird was nowhere in the vicinity; at any rate, I did not succeed in flushing her in spite of much tramping about.

This absence of the hen, which I have always observed when I have found the cock with either eggs or young birds, is the more strange in view of the fact that at other times the birds are almost invariably found in pairs.

On a second occasion I was taken to a nest containing eggs by a "Snipe-boy," who said that it had been found the previous day by a party of reapers, and the hen refusing to leave the nest one of them had killed her. Enquiries proved that what the boy called "kirichi" ("hen") was, in all probability, the less brilliant cock bird, to judge from his description. Too much reliance must not, however, be placed in this instance, as the native ideas of colour are notoriously vague and unreliable.

In every case in which I have come upon the young birds they have been in the care of their male parent, the hen being either not in the neighbourhood at all or else some

distance away. There consequently seems no reasonable ground to doubt that the cock bird does look after his offspring until such time as they are capable of looking after themselves.

Judging from the following instance it would seem that the period of paternal care is a somewhat protracted one:—

On the 14th of March, 1910, I flushed four Painted Snipe in a small field in very rapid succession, and shot them all. To all appearances they were all adult males, and it was only on close examination that I found that three of the four birds were young in their first plumage; the last was, presumably, their long-suffering parent.

Darwin states that, "When the adult female is more conspicuous than the adult male . . . . the young birds of both sexes in their first plumage resemble the adult male." This law is well exemplified in the case of *Rostratula capensis*, and it is only after the female has attained maturity that she dons the brilliant plumage characteristic of her sex. Some regard it as likely that the hen *Rostratula* exhibits seasonal dimorphism in her plumage, assuming her gorgeous dress only during the breeding-time, while at other seasons she resembles the male. Personally, I have shot females in characteristic plumage in all the months of the year, excepting May, June, and July, when, indeed, I have hardly ever gone into a paddy-field. The fact that the hen bird wears her gayer dress during nine months of the year *at least*) renders it highly probable that she retains it all the year through, and, except in her first year, has no other.

The theory by which Wallace accounted for the duller plumage of hen birds, as compared with that of their mates, finds additional support in the case of *Rostratula capensis*. Here the female, with the acquisition of those characters which unfit her for the perils of maternal duties, has lost the maternal instinct, which has, to meet the lack, been developed in the male.

Concerning the courtship of these birds, I unfortunately know nothing, and as they are comparatively scarce and of a

shy disposition, it would require much time and infinite patience to obtain accurate information on the subject.

One is tempted to assume that along with the acquisition of the physical characteristics of maleness, such as superior size, more conspicuous plumage, and complicated trachea, the female of this species has also acquired the ardour and pugnacity of the male, and that the courter has now become the courted.

It would certainly not be surprising to find that this is actually the case, for if the loss of the maternal instinct be a step taken upon the road which leads to masculinity in all things—and it surely is that,—then the females of *Rostratula capensis* have not much further to travel along that road.

I have omitted to describe the plumage of the sexes of *Rostratula capensis* at length, as such a description may be found in many of the ordinary text-books.

XXXI.—*Notes on the Vultures found in the neighbourhood of Simla and adjacent ranges of the Himalayas.* By P. T. L. Dodsworth, F.Z.S., M.B.O.U.

Ornithology has been studied for so many years in India, that it seems somewhat absurd to have to admit at the present day, that the exact limits and distribution of such large birds as the Vultures in this country have not yet been fixed with precision. Indeed, to go a step further, recent enquiries * have revealed the startling fact that systematists are not yet agreed as to whether one of the common Indian species of Vultures is identical with, or distinct from, the European Griffon! The bird referred to is the common Bay Vulture—the *Gyps fulvescens* of Hume. Dr. Sharpe considered this bird a distinct species. Blanford, on the other hand, treats *Gyps fulvescens* as synonymous

* Journal Bombay Natural History Society, vol. xxi. 1912, pp. 1331, 1332.